What Is Claimed Is:

1.   An off-line diagnosis system comprising:

a field instrument that relates to process control and has a self-diagnosis function or a valve diagnosis function; and

5   a host application that performs digital communication with said field instrument, wherein the self-diagnosis of said field instrument is executed or the diagnosis of a valve is executed during an off-line interval and diagnosis results are transmitted to said host application, and wherein the signal input range of said field instrument or said valve is divided into a plurality of zones with respect to the time axis or input axis, and the diagnosis results of each 10   zone are successively transmitted to said host application.

2.   The off-line diagnosis system of claim 1, wherein said field instrument retains the diagnosis results data of one zone among said plurality of zones in data memory means with a given memory capacity and, while transmitting said retained data to said host application, also retains the diagnosis results data of another zone in said data memory means to communicate said retained 15   data to said host application.

3.   The off-line diagnosis system of claim 1 or 2, wherein said self-diagnosis or said valve diagnosis is based on input-output characteristics measurement in which an input is given to said field instrument or said valve and then the output value thereof is measured.

4.   The off-line diagnosis system of claim 1 or 2, wherein said self-diagnosis or said valve 20   diagnosis is based on measurement of response characteristics in which a step input is given to said field instrument and then the output value thereof is measured.

5.   The off-line diagnosis system of any of claims 1 to 4, wherein data analyzing systems are provided in either said field instrument or said host application or in both.

6.   The off-line diagnosis system of any of claims 1 to 5, wherein said field instrument is a 25   valve positioner.

7.   The off-line diagnosis system of any of claims 1 to 5, wherein said field instrument is an electro-pneumatic converter.